DOCUMENT RESUME

ED 130 794 PS 008 937

AUTHOR Volkmar, Fred R.; Siegel, Alberta E.
TITLE Young Children's Responses to Discrepant Social Communications.
PUB DATE 6 Sep 76
NOTE 8p.; Paper presented at the Annual Meeting of the American Psychological Association (84th, Washington, D. C., September 6, 1976)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Age Differences; *Auditory Visual Tests; *Communication (Thought Transfer); *Infants; *Nonverbal Communication; *Preschool Children; Research; Response Mode; *Verbal Communication

ABSTRACT

This study attempted to assess how very young children respond to discrepant social communications. Forty children, ages 12 to 42 months, with their mothers were exposed to four trial situations: two discrepant, two nondiscrepant communication episodes. Two observers recorded each child's movement and behavior. Results indicated a significant difference in children's reaction to discrepant and nondiscrepant messages. Children appeared to understand messages which came to them on either the visual or auditory channel, even when that information was not complemented by information on the other channel. When the messages on the two channels were contradictory, responses were more reserved. Age trends were evident, with younger children remaining in closer proximity to their mothers and responding more warily to the experimenter. (SB)

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YOUNG CHILDREN'S RESPONSES TO DISCREPANT SOCIAL COMMUNICATIONS*

Fred R. Volkmar and Alberta E. Siegel
Department of Psychiatry and Behavioral Sciences
Stanford University School of Medicine

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Paper to be presented by Dr. Volkmar on September 6, 1976, at the Annual Meeting of the American Psychological Association, Washington, D.C.

Problem

Human beings typically communicate with one another across several sensory modalities. The visual and the auditory channels seem to be the most significant of these (Hinde, 1974). Messages are usually congruent (redundant) across the two channels--the facial expressions, head movements, manual gestures, postures, etc., which are observed in the visual channel are usually congruent with the spoken words and tone of voice heard on the auditory channel.

Infants and very young children seem to be especially attuned to facial expressions and gestures, but they also become proficient early in life in interpreting voiced communications. We do not yet know which aspects of human communication convey the most meaning to them, nor how much redundancy is required. One way to assess how effectively information is conveyed over the two channels is to set up messages which are discrepant or incongruent between the channels. We did that in this experiment.

It is widely claimed that discrepancies in communications between channels are characteristic of psychopathological interpersonal relations (Bateson, et.al., 1956). This claim has been attractive but has resisted systematic test. It has been reported that adults resolve discrepancies between facial expression and the content of speech by relying on the visual message to derive meaning (Mehrabian and Ferris, 1967). Bugental (1974) has reported that children rely more on the verbal content of discrepant messages than do adults.

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*We are grateful to Dr. E. Lawrence Hoder, who assisted us in a variety of ways in this research, and to Professors Albert H. Hastorf and Thomas Anders who advised on its planning. The Boys Town Center for the Study of Youth Development at Stanford provided financial support. Without the kind help of the forty young children and their parents, this study would not have been possible. We appreciate their participation. Several abbreviations are used in this report. They are: E, the experimenter (Dr. Volkmar); S, the child; O, the observer (either Dr. Hoder or Prof. Siegel). A more comprehensive version of this report is available from the authors.

In this study we attempt to assess how very young children resolve such conflicting communications. This assessment relies on measures of behavior in time and space rather than on "paper and pencil" ratings of the communication by the child. This experiment may suggest a way to study discrepant communication in a laboratory situation without resort to such depersonalizing artifices as tape recordings, videotaped stimulus materials, etc.

Subjects

Forty young children and their mothers participated. Criteria for inclusion of a child were: (a) age between 12 and 42 months, (b) use of English as a first language, and (c) ability to walk and freedom from gross handicap in either sensory or motoric development. We recruited among the families of the interns and residents of Stanford's medical center, the families of graduate students, and a few families in the Palo Alto community. Essentially all the Ss are from middle class families of modest economic status and high levels of education.

Procedure

Mothers and fathers were telephoned, the study was described in detail, and the parents were asked to participate in it. An appointment was made for the mother to bring her child to a playroom at the Medical Center. When she arrived, informed consent was obtained from her via her signature on a detailed description of the procedures.

E took the mother and child to the experimental room, the floor of which had been marked off into a matrix of 31 2' x 2' squares (Fig. 1). E asked the mother to be seated throughout the brief session, and then left the room, stating "I'll be back soon." Mother and child were then observed for one minute in E's absence.

E returned carrying a large balloon which he placed on the floor in front of his low stool. He asked the child to be seated and then signalled to Os that the first of the four trials would begin.

Trials. The four trials consisted of two discrepant and two nondiscrepant communication episodes, each lasting one minute or until the child reached criterion, i.e., entered E's square. The initial trial and the third trial were nondiscrepant communications (either trial A or B), and the second and fourth trials were discrepant communications (trials C and D). Within these constraints,

set in order to make the procedures more acceptable to the children, sequence of trials was systematically randomized over the 40 sessions.

Fig. 2 summarizes the features of the four trials. Facial and gestural messages were displayed continuously throughout a trial; spoken messages were emitted at the rate of approximately one word per second with a 2-second interval between repetitions.

TRIAL A: E smiled broadly, beckoned to the child with his hand, and nodded his head affirmatively, without speaking.

TRIAL B: E maintained a blank face and avoided head movements or manual gestures, while inviting the child to approach in a warm, pleasant tone of voice--"Come here, come here (child's name)."

TRIAL C: E gave the same facial display and gestures as in Trial A, while speaking in a cold tone of voice--"Stay away, stay away (child's name)."

TRIAL D: E gave the same spoken message as in Trial B, while frowning, looking disapproving, shaking his head from side to side, and giving hand signals to stay away.

If a child came to E's space, he or she was allowed to detach some plastic self-adhesive flowers from a sheet of paper and stick these on the balloon. Before the next trial began, E asked the child to return to his or her seat.

At the conclusion of the four trials, the child was again asked to be seated and then E gave a totally congruent positive message, requesting the child to come over to him. When the child did so, he or she was presented with the balloon as a gift. E and the child then played together briefly while E discussed the child's performance with the mother, answering her questions, etc.

Measures. One observer recorded the timing and location of the child's movement about the room. For each trial, he plotted movements on a map of the room. Using a stop watch, he also timed the child's latency to first movement from the chair and latency to criterion, i.e., entering E's square.

The second observer dictated a tape recorded narrative of the child's behavior throughout the session.

Results

On the average, the children entered 7.6 squares during the observation minute that preceded the trials, while E was away. The mean scores for each of the four experimental trials are presented in Fig. 2. We summed each child's number of squares entered for the congruent trials (A and B) and for the discrepant

trials (C and D) and tested the significance of the difference by the Wilcoxon matched-pairs signed-ranks test: $z = 3.60$, $p < .001$, two-tailed test.

Latency to first movement averaged 21 sec. during the initial observation period, 24 sec. in trial A, 18 sec. in trial B, 41 sec. in trial C, and 26 sec. in trial D. By the Wilcoxon test, the difference between the children's latencies on trials A and B and their latencies on trials C and D is significant, $z = 3.32$, $p < .001$, two-tailed test.

The mean distance of closest approach of the child to E during the four trials is presented in Fig. 2. By the Wilcoxon test, the difference between their distances on trials A and B and their distances on trials C and D is significant, $z = 3.56$, $p < .001$, two-tailed test.

During the initial observation period, the average distance that the children ranged from their chair was 6.9 ft. During trial A it was 6.5 ft.; during trial B, 7.4 ft.; during trial C, 3.1 ft.; and during trial D 6.8 ft. By the Wilcoxon test, the difference between the children's ranges on trials A and B and their ranges on trials C and D is significant, $z = 2.68$, $p < .01$, two-tailed test.

A trial ended when a child approached within one foot of E, i.e., entered E's square. There were 12 children who failed to reach this criterion on any of the four trials, 6 who reached criterion on all four trials, and 12 who reached criterion on trials A, B, and D but not on trial C. On trials A and B, average time to criterion was 34 and 30 sec. respectively. On trials C and D, it averaged 51 and 39 sec. respectively. By the Wilcoxon test, the difference between children's scores on trials A and B and their scores on trials C and D is significant, $z = 3.72$, $p < .001$, two-tailed test. A Cochran Q test performed on the number of subjects reaching criterion in the four conditions is significant at the $p < .001$ level ($Q = 38.59$, 3df).

Age trends were evident on all measures, with the younger children remaining in closer proximity to their mothers and responding more warily to E. These findings remind us that E is a stranger to the child. Rank-order correlations between age and each of the measure for each trial are generally significant and of moderate strength.

Sex differences are not dramatic. They appear on some trials and for some measures but are not impressive in size or consistency.

All children approached E at the conclusion of the session when he presented them with a totally positive invitation to approach.

In general, the pattern of responses is similar for trials A and B. Trial C elicits the wariest and most hesitant responses.

Conclusions

Very young children appear to understand messages to approach which come to them on either the visual channel (trial A) or the auditory channel (trial B), even though these messages are not complemented by the information on the other channel.

When the messages on the two channels were contradictory (trials C and D), children's responses were more reserved, hesitant, wary and perplexed. The message on trial C elicited the least approach behavior--despite the warm facial expression, head nods, and repeated manual beckoning, many children stayed away from E, as he was telling them to do in a cold tone of voice. Somewhat more approach behavior was elicited by the message on trial D--when asked to "come here" in a warm tone of voice, the children did so despite E's forbidding facial expression, shakes of his head, and rejecting hand signals. These results make us wonder whether the auditory channel dominates the visual channel for these young children, but such a conclusion awaits many more investigations along the lines we have launched here.

The consistent differences between trials A and B and trials C and D demonstrate that young children recognize and respond to incongruity in social communications.

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Fig. 1 Plan of Experimental Room

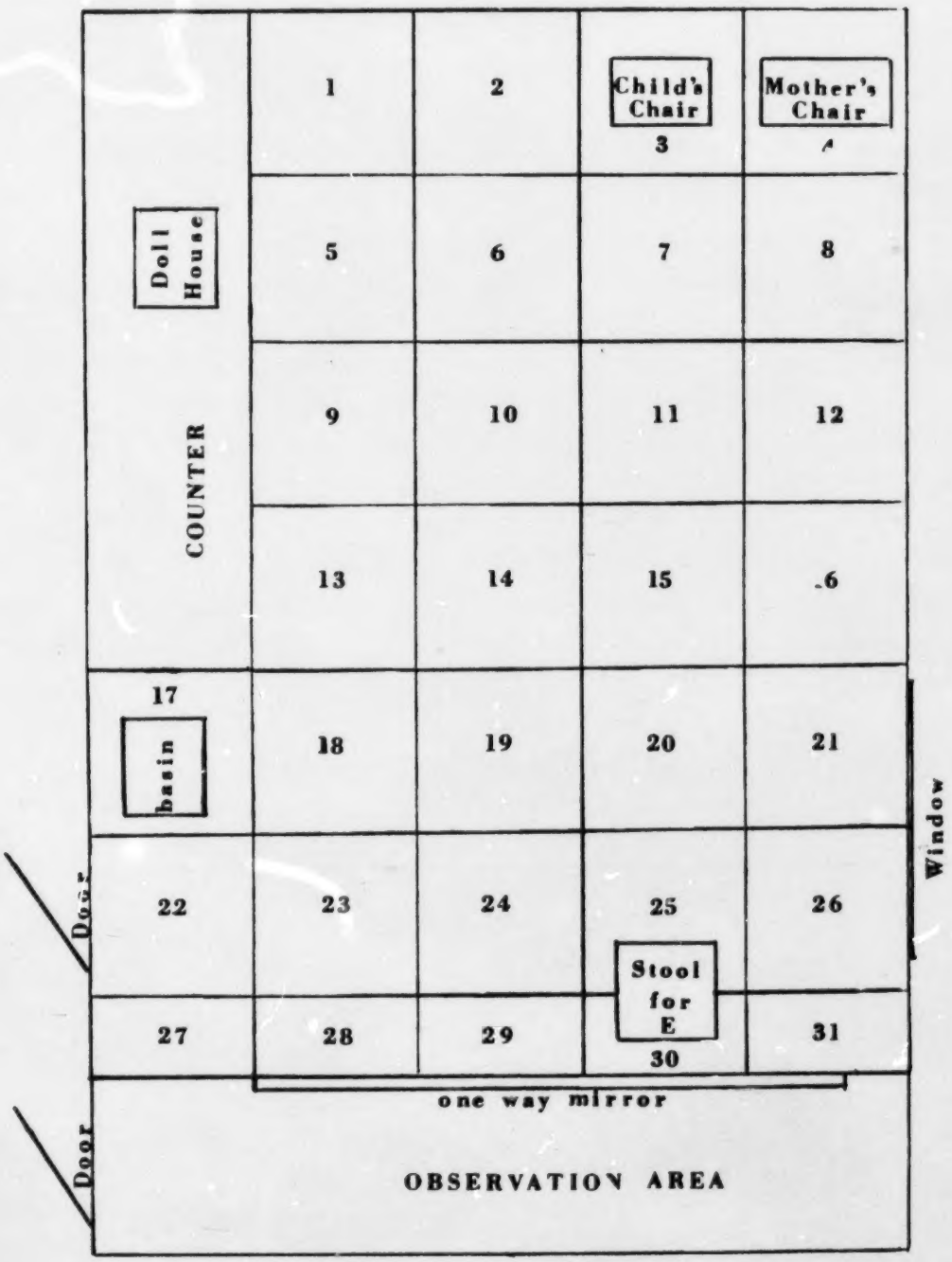

Figure 2: Summary of Conditions and Results

Conditions	Nondiscrepant A	Nondiscrepant B	Discrepant C	Discrepant D		
Visual Channel						
Facial Expression	warm	blank	warm	cold		
Gestures	signals to approach	none	signals to approach	signals to stay away		
Auditory Channel						
Speech	none	"Come here"	"Stay away"	"Come here"		
Tone of Voice	none	warm	cold	warm		
Results: mean scores					**Z**	**p <**
Latency	24	18	41	26	3.32	.001
Time to Criterion	34	30	51	39	3.72	.001
Squares Entered	3.6	4.6	2.8	4.5	3.60	.001
Distance of closest Approach to E	3.7	3.4	7.5	4.5	3.56	.001
Range from Chair	6.5	7.4	3.1	6.8	2.68	.01

See text for explanation; times reported in seconds, distances in feet